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2000 CENSUS

Status of Key Operations

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2000 Census: Status of Key Operations

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the status of the 2000 Census. With just over 6 weeks remaining until Census Day, April 1, 2000, the decade-long process of researching, planning, testing, and evaluating procedures for the nation's largest peace-time mobilization has come to a close, and the complex and costly data collection and tabulation phase is now under way. At this critical juncture, it is important to examine the state of the census, taking measure of the progress that has been made toward ensuring a complete and accurate enumeration, and the level of risk that remains.

As you are aware, in two recent reports we discussed specific operational uncertainties that pose a threat to a successful population count. In our December 1999 report, we concluded that the 2000 Census may be less accurate than the 1990 Census, in part because motivating public participation in the census will be a formidable task and field follow-up efforts with nonrespondents will be costly and may produce unreliable data.¹ To address these uncertainties, we recommended that the Director, Bureau of the Census, develop a contingency plan to mitigate the impact of a lower-than-expected mail response rate. Moreover, in early-February, we reported on the challenges facing the Bureau's data capture system.² My statement today elaborates on the operational uncertainties addressed in these reports: (1) achieving the Bureau's mail response rate objective, (2) collecting accurate and timely data from nonrespondents, and (3) conducting data capture operations. Where appropriate, I've included information on developments that have occurred since these reports were issued that might affect the conduct of the census.

In discussing these uncertainties, three themes will be highlighted. First, while the census is a national undertaking, it is locally implemented. This is important to keep in mind because successes or problems in one area do not necessarily affect other areas. For example, a higher-than-expected mail response rate or a very successful staff recruitment effort in one city or neighborhood does not compensate for problems in other cities or neighborhoods. Thus, while national data on the status of census operations are important for providing an overall perspective, these data can mask shortcomings at the local level that can affect the success of the census. Indeed, experience from the 1990 Census, as well as from the

¹ 2000 Census: Contingency Planning Needed to Address Risks That Pose a Threat to a Successful Census (GAO/GGD-00-6, Dec. 14, 1999).

² 2000 Census: New Data Capture System Progress and Risks (GAO/AIMD-00-61, Feb. 4, 2000).

Bureau's preparations for 2000—including the 1998 dress rehearsal census³—suggest that public and institutional cooperation will be inconsistent, and that pockets of problems are likely to occur that may not be captured by examining the census from a national perspective.

Second, many of the risks to a complete and accurate census the Bureau faces are interrelated. Mail response rates determine follow-up workload. Follow-up workload drives staffing needs, which in turn can affect the Bureau's operational schedule and the quality of data. The cumulative and interrelated effect of these challenges is the fundamental risk facing the Bureau.

Third, the census is a shared national undertaking. The Bureau of the Census, other federal agencies, state and local governments, a vast network of public and private organizations, and ultimately the American public, all play vital roles in making the census a success.

Background

We have been tracking the Bureau's progress in designing and implementing the 2000 Census throughout this past decade. A consistent theme of our work has been that despite the Bureau's unprecedented efforts to achieve maximum accuracy in the most cost-effective way possible, formidable challenges surround such key census-taking operations as building a complete and accurate address list, securing an acceptable level of public participation, hiring a sufficient number of temporary workers, and gathering accurate and complete data. These challenges have raised concerns that the 2000 Census may be less accurate than the 1990 Census.

The cost of the 2000 Census has already far surpassed that of the 1990 Census in real terms. The Bureau estimates that the 2000 Census will cost at least \$6.8 billion, which is more than double the \$3.2 billion cost of the 1990 Census in 1999 dollars. To be sure, the nation's population—and thus the Bureau's workload—has also increased over the past 10 years, but even when measured on a per housing unit basis, the price tag for enumerating each household has risen dramatically. It will cost an estimated \$57 to enumerate each housing unit in 2000 compared to about \$31 in 1990, an increase of 84 percent in 1999 dollars.

³ The dress rehearsal for the 2000 Census was held at three sites: Sacramento, CA; 11 counties in the Columbia, SC, area; and Menominee County in Wisconsin, including the Menominee American Indian Reservation. The dress rehearsal tested the Bureau's operations and procedures planned for the 2000 Census, and was conducted in April 1998.

The scale and complexity of the Bureau's task is enormous. For the 2000 Census, the Bureau will need to properly locate and collect information from about 274 million people residing in over 119 million housing units. To do this, the Bureau opened 520 local census offices, and has plans to fill about 1.35 million temporary positions and process about 1.5 billion pages of data.

The Census Faces Significant Risks

For the 2000 Census, the Bureau will be challenged to boost the declining level of public participation in the census and collect timely and accurate data from initial nonrespondents. A high mail response rate is key to a successful census because it helps the Bureau obtain more accurate data and reduce what has been an error-prone and costly nonresponse follow-up workload.

Achieving the Bureau's Mail Response Rate Objective Will Be Difficult

The Bureau is anticipating a mail response rate of 61 percent; however, achieving this level of public participation will be a formidable task. The mail response rate has declined with each decennial census since the Bureau first initiated a national mailout/mailback approach in 1970. In 1970, the Bureau achieved a 78-percent response rate. The response rate declined to 70 percent in 1980, and 65 percent in 1990. This declining trend is due, in part, to various demographic, attitudinal, and other factors, such as concerns over privacy, mistrust of government, more complex living arrangements, and a proliferation of unsolicited mail and surveys.

To help boost public participation in the census, the Bureau has instituted an outreach and promotion campaign that is as ambitious as it is diverse. At the national level, the Bureau hired a consortium of private-sector advertising agencies, led by Young & Rubicam, to develop an extensive paid advertising program for the 2000 Census. To date, television advertisements stressing the theme that participating in the census benefits one's community have been aired during daytime soap operas and game shows, as well as during the Super Bowl and a number of programs targeted to specific racial and ethnic groups. As for print media, advertisements have appeared in such diverse publications as TV Guide, Ebony, Korea Times, and India Today. The Bureau estimates it will spend about \$167 million on the paid advertising campaign in fiscal years 1998 through 2000, of which \$102.8 million was allocated for media buys in fiscal years 1999 and 2000.

At the local level, the Bureau has secured partnerships with local governments, community groups, businesses, and nongovernmental organizations to promote the census at the grassroots level. The Bureau reports that it has secured around 55,000 such agreements to date.

The Bureau's aggressive outreach and promotion initiatives face several hurdles. First, rather than simply raising the public's awareness of the census, the Bureau must actually motivate people to complete a census questionnaire and return it on time. This gap between awareness of the census, on the one hand, and actually responding, on the other, was evident during the 1990 Census when the public's high level of awareness was not matched by a similarly high mail response rate. In fact, the Bureau found that although 93 percent of the population reported being aware of the census, the mail response rate was just 65 percent.

Unfortunately, data from the 1998 dress rehearsal suggest that the Bureau's promotional efforts did not bridge this motivational gap. Although a Bureau evaluation found that about 90 percent of the residents in the South Carolina and Sacramento dress rehearsal sites were aware of the census, the mail response rate at both sites was around 55 percent.

Second, the Bureau expanded and enhanced the paid advertising campaign following the dress rehearsal (the most intensive phase of the campaign began earlier this month). However, the impact that this additional advertising might have on people's willingness to respond to the census is difficult to predict. According to the Bureau, there did not appear to be a direct relationship between exposure to advertising during the dress rehearsal and the likelihood of returning a census form.⁴ However, the Bureau suspects that the campaign had an "indirect effect" on public response to the census in that the campaign may have made people expect the census form in the mail, which in turn increased the likelihood that they would return it.

With respect to local outreach and promotion, we are concerned that the Bureau may have overly optimistic expectations concerning the resources and capabilities available at the local level to promote the census. For example, a key element of the Bureau's local partnership effort is the Complete Count Committee program. The committees, which are to consist of local government, religious, media, education, and other community leaders, are to promote the census by sponsoring events, placing articles in local newspapers, and holding press conferences that convey the importance of the census. The Bureau hopes that local people who are trusted by members of the community can more effectively market the census to those who are difficult to convince through

⁴ See Census 2000 Dress Rehearsal Evaluation Results Memorandum E1b, Effectiveness of the Paid Advertising Campaign: Reported Exposure to Advertising and Likelihood of Returning a Census Form, U.S. Census Bureau, April 1999.

traditional advertising media. Thus, while the Bureau has formed partnerships with a number of religious, service, community, and other organizations, the Bureau believes that Complete Count Committees are key to persuading everyone to respond.

To date, based on our recent interviews with officials from several regional census offices, a number of communities appear to be aggressively supporting the census. For example, some health clinics in rural Kentucky are showing census videos in waiting rooms, and some state and local governments have allocated money for partnerships and advertising in local media, while others have set up web sites containing information on the census and census employment opportunities. However, the level of activity and support for the census is likely to vary across the country, in part because of a lack of resources. We found that during the dress rehearsal the committees often lacked the money, people, and/or expertise to launch an adequate marketing effort. With respect to money, officials representing 9 of the 14 local governments participating in the dress rehearsal told us that they were unable or unwilling to fund promotional activities. Some local governments also had difficulty getting staff to volunteer to help plan and organize promotional activities, while others lacked the experience and knowledge to market the census.

The Bureau has also hired 613 partnership specialists to help local groups initiate and sustain grassroots marketing activities, such as the Complete Count Committees. However, based on the dress rehearsal experience, these partnership specialists may be spread too thin to offer meaningful support. According to the Bureau, there are now about 12,000 Complete Count Committees. Thus, on average, each partnership specialist is responsible for assisting approximately 20 committees. By comparison, during the South Carolina dress rehearsal, some committees never formed, while others became inactive, partly because the Bureau's two partnership specialists were responsible for assisting an average of six local governments. Initiating and maintaining the efforts of the Bureau's thousands of additional local partners will stretch the partnership specialists' workload still further. Consequently, it is likely that the results of the Bureau's local outreach and promotion efforts will be inconsistent.

Field Follow-up Efforts Will Be Costly and May Produce Unreliable Data

To count those individuals who do not mail back their census questionnaires, the Bureau conducts a nationwide field follow-up operation in which temporary employees called enumerators visit and collect census information from each nonresponding housing unit. However, past experience has shown that following up with nonrespondents is one of the most error-prone and costly of all census

operations. The Bureau will be challenged to complete nonresponse follow-up on schedule without compromising data quality, and to adequately staff nonresponse follow-up operations.

Workload and Schedule

With regard to completing nonresponse follow-up on schedule, if the Bureau achieves its anticipated 61-percent mail response rate, enumerators will need to follow up on about 46 million of the more than 119 million housing units estimated to be in the nation. However, completing this workload in the 10-week time frame the Bureau has allotted for nonresponse follow-up could prove extremely difficult since the Bureau will need to complete an average of more than 657,000 cases each day for the entire 10-week period. In addition, the Bureau's quality assurance procedures, which call for enumerators to revisit certain households to identify and correct enumeration errors, will add more than 17,000 cases to the Bureau's average daily workload. Sustaining this pace could prove challenging for a variety of reasons, ranging from nonrespondents' unwillingness to open their doors to enumerators to adverse local weather conditions. By comparison, during the 1990 Census, it took the Bureau 14 weeks to follow up with 34 million households using essentially the same approach to nonresponse follow-up.

Moreover, if the response rate proves to be less than 61 percent, past experience has shown that a lower-than-expected mail response rate can trigger a chain of events that can have significant implications for the accuracy and cost of the census. This was demonstrated during the 1990 Census. The Bureau had budgeted for a nonresponse follow-up workload of about 31 million cases, but because of an unexpectedly sharp decline in the mail response rate, the Bureau had to follow up on an additional 3 million cases. The higher than expected workloads aggravated an already difficult staffing situation in which some census offices had difficulty filling all positions and enumerator productivity was lower than anticipated. As a result, 14 weeks were required to complete the nonresponse follow-up operation, which was 8 weeks longer than the Bureau's initial estimate.

Proxy Data

As the data collection period dragged on, the accuracy of the information collected declined as some people moved and others had difficulty remembering who was residing in their households on April 1. To complete nonresponse follow-up, enumerators collected data from secondhand sources, such as neighbors and mail carriers. However, such "proxy" data are not as reliable as data obtained directly from household residents. According to Bureau officials, a mail response rate as little as 2

or 3 percentage points less than the Bureau's 61-percent goal could cause serious problems.

During the dress rehearsal, although nonresponse follow-up operations were completed on schedule in both Menominee County and Sacramento, and 6 days early in South Carolina, the Bureau found that securing interviews with household members proved to be more difficult than it had anticipated. The Bureau hoped to limit the portion of the nonresponse follow-up universe workload that was proxy data to less than 6 percent; however, the Bureau did not achieve this objective at any of the three dress rehearsal sites. In Sacramento, 20.1 percent of the occupied nonresponse follow-up universe was proxy data; in South Carolina, the proportion was 16.4 percent; and in Menominee County, it was 11.5 percent.

Census Costs

Nonresponse follow-up is also expensive. Each percentage point drop in the mail response rate in this census would increase the nonresponse follow-up workload by about 1.2 million households. In 1995, the Bureau estimated that a 1-percentage point increase in workload could add approximately \$25 million to the cost of the census. On the basis of our current analysis of fiscal year 2000 budget estimates, we project that a 1-percentage point increase in workload could add at least \$34 million in direct salary, benefits, and travel costs to the \$1.5 billion budgeted for nonresponse follow-up.⁵ The extent to which the Bureau would be able to absorb these additional costs will be a function of the actual outcome of other assumptions, such as enumerator productivity.

Staffing

In addition to the challenge of completing nonresponse follow-up on schedule with minimal use of proxy data, uncertainties exist concerning the Bureau's ability to staff nonresponse follow-up. The Bureau plans to fill about 860,000 positions for peak field operations, including 539,000 positions for nonresponse follow-up. Because the Bureau anticipates that a number of applicants will not qualify for census employment, and to cover for the possibility of high turnover rates, the Bureau estimates it will need to recruit over 3 million people to apply for census employment. The Bureau wants to have a pool of 2.4 million qualified applicants by April 19, 2000. To qualify for census employment, candidates have to meet the Bureau's employment requirements, which include passing a basic skills test and a personal background check.

⁵ 2000 Census: Analysis of Fiscal Year 2000 Amended Budget Request (GAO/AIMD/GGD-99-291, Sept. 22, 1999).

Nationally, the Bureau's goal was to recruit 45 percent of the 2.4 million qualified applicants—about 1.1 million people—by February 1, 2000. Bureau data as of February 9, 2000, showed that the Bureau had recruited 1.3 million qualified applicants, or just over half of its 2.4 million target. However, these national data mask the fact that the Bureau's progress in recruiting qualified candidates is lagging in a number of locations. As of February 9, 2000, 3 of the Bureau's 12 regions⁶ and 178 (35 percent) of 511 local census offices⁷ were below the Bureau's 45-percent benchmark. Although some local census offices were just a few percentage points below the Bureau's 45-percent goal, 25 fell short by 20 percentage points or more. Of the 333 local census offices that were ahead of the Bureau's February 1st milestone, 163 exceeded it by at least 20 percentage points.

The Bureau is aggressively recruiting candidates, and thus applicant levels will change on a daily basis. Recruitment needs vary by local census office, depending on their specific operational requirements, and the Bureau seeks to hire local people who are familiar with their communities and committed to a successful count in their own neighborhoods. Thus, as a number of local census offices appear to be falling short of the Bureau's interim milestones, it is important for the Bureau to closely monitor progress at the local levels.

To help ensure it meets its recruitment goals, the Bureau has a number of initiatives in place. Key among these are (1) the hiring of a private firm to develop a recruitment advertising campaign; (2) a geographic pay scale with wages set at 65 to 75 percent of local prevailing wages (from about \$8.25 to \$18.50 per hour for enumerators); and (3) partnerships with government agencies, community groups, and other organizations. However, as the Bureau fully appreciates, it is recruiting workers in an unusually tight labor market, and census jobs may not be as attractive as other employment opportunities because they do not offer benefits, such as health or life insurance, sick or annual leave, retirement plans, and childcare.

Thus, as we stated in our December 1999 report, to help expand the census applicant pool still further, Congress may wish to consider legislative actions to modify legal provisions that could prohibit or financially discourage specific groups of people from seeking census employment. For example, Congress may want to consider allowing active duty military

⁶ The Atlanta, Chicago, and Philadelphia census regions fell short of the Bureau's interim milestones.

⁷ Our analysis did not include nine local census offices in Puerto Rico.

personnel to hold temporary census employment. (Currently, such individuals are generally prohibited from holding outside federal employment.) These proposals were included as part of H.R. 3581, introduced by Representative Maloney on February 7, 2000.

The Bureau Faces Formidable Challenges in Conducting Data Capture Operations

In addition to the uncertainties and risks surrounding the outreach and promotion program and nonresponse follow-up operation, the Bureau also faces formidable challenges in performing critical data capture operations. These challenges fall into two basic categories: (1) ensuring the operational readiness of the Data Capture System (DCS) 2000—which is the system that each data capture center (DCC)⁸ will use to check-in questionnaires and determine which households have responded, scan the questionnaires to produce an electronic image, optically read handwritten marks and writings from the imaged questionnaires, and convert the data into files that will be transmitted to Bureau headquarters for tabulation and analysis—and (2) ensuring the readiness of DCC operations, including the movement and processing of paper questionnaires.

DCS 2000 Progress and Risks

The Bureau has made considerable progress in acquiring and deploying DCS 2000. However, we reported earlier this month that its prospects for delivering full system capability on time were still mixed.⁹ As of January 7, 2000, when we concluded our review of the DCS 2000 system, hardware had been installed at all four data capture centers; 21 of the system's 23 planned application software releases had been completed; and 6 of 10 major test events had been performed. Additionally, results from system-level tests performed thus far showed that key DCS 2000 performance targets were being met, and the Bureau was reporting that remaining DCS 2000 tasks were on schedule.

Despite this progress, the Bureau was still facing a huge challenge in delivering promised DCS 2000 capabilities on time, primarily because much remained to be done within the very short time remaining before data capture operations were to begin. In particular, the Bureau had extended the system's schedule by 4 months due largely to requirements changes—from October 15, 1999, to February 25, 2000—leaving just 9 days between the conclusion of the last test event and the date that DCS 2000 must be operational. Moreover, at the time of our review, the Bureau still needed to complete many important system development and testing activities, including the completion of the final two software releases as

⁸ The data capture centers are located in Baltimore, MD; Jeffersonville, IN; Pomona, CA; and Phoenix, AZ.

⁹ GAO/AIMD-00-61.

well as system acceptance, site acceptance, and operational tests. Furthermore, the numbers of yet-to-be resolved defects in DCS 2000 were not yet showing the clear and sustained downward trend that is expected as a system begins to mature, and the yet-to-be completed development and testing activities may surface more problems.

The Bureau and its DCS 2000 development contractor shared our concerns about the delivery of promised DCS 2000 capabilities on time, and in response, they were employing measures to minimize risks and to expedite the completion of DCS 2000. For example, they implemented a formal risk management program to address risks proactively, and they defined and were following processes to ensure that only those changes that were justified on the basis of costs, benefits, and risks were approved and made. Also, they added a test event scheduled for February 22-25, just prior to the system's operational date, to evaluate, among other things, the system's capabilities in a true operational setting. Another factor strongly in the Bureau's favor is that its development contractor has been independently assessed as having highly effective software development capabilities in such important areas as software project planning, tracking and oversight, configuration management, software quality management, and defect resolution. Lastly, partly in response to our review, the Bureau and its development contractor initiated proactive and appropriate risk management steps, such as strengthening oversight of the resolution of system defects and requirements changes. While these steps do not guarantee success, they should help mitigate risk and its potential impact on the program.

Data Capture Center Operations

As previously mentioned, the Bureau is to conduct a final operational test involving all four DCCs during the period February 22-25, 2000. This final operational test is to include assessments of the centers' ability to process a workload equivalent to that expected during actual data capture operations, including operational testing of the final DCS 2000 software release. As part of this test, the Bureau will assess its ability to achieve desired production rates for checking-in and scanning questionnaires, among others. During an operational test at the Pomona, CA, DCC in October and November 1999, the Bureau's production goals were not met in these and other critical areas. More recently, however, an operational test was completed in early February at the Phoenix DCC. According to Bureau officials, preliminary results show that the Phoenix DCC exceeded its productivity goals for checking-in and scanning forms. Bureau officials attribute the improvements in part to better crew training and increased practice time, two issues identified during the Pomona operational test. We will review the results of the forthcoming test and continue to monitor

the Bureau's progress in getting its data capture processes fully operational.

Contingency Plans Could Help Mitigate the Risks That Pose a Threat to a Successful Census

To help ensure an accurate and cost-effective census, we recommended in our December 1999 report¹⁰ that the Director, Bureau of the Census, develop a contingency plan of actions the Bureau could take to address the operational challenges that would result from a questionnaire mail response rate that was lower than anticipated. We noted that the Bureau's plan should address, at a minimum, the budgetary, scheduling, staffing, and other logistical implications of collecting data from a larger number of nonresponding households.

For example, the contingency plan could include options and procedures to balance the pressure to meet census schedules against the need to limit the use of proxy data, and should be shared with Congress. The uncertainties facing the Bureau's data capture system make the need for a contingency plan even more compelling.

In response to our recommendation, the Bureau has noted that the only serious contingency plan would be to request a supplemental appropriation from Congress. However, we continue to believe that a more fully developed and publicly disclosed plan would be helpful.

Moreover, as previously noted, a margin of just 2-3 percentage points separates a response rate that is consistent with the Bureau's goal, from one that could trigger a host of operational problems. Thus, by focusing on the critical challenges and trade-offs that the Bureau will face if it falls short of its response rate goals, events that helped compromise the success of the 1990 Census could be addressed more effectively and possibly avoided.

In summary, Mr. Chairman, the Bureau has put forth a tremendous effort to help ensure as complete and accurate a count of the population as possible, testing and retesting its design, and making significant modifications when necessary. Nevertheless, substantial challenges to a successful census remain, and as we have done throughout the decade, we look forward to keeping the Subcommittee informed of the Bureau's progress and the results of the census.

¹⁰ GAO/GGD-00-6.

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Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions you or other Members of the Subcommittee may have.

Contact and Acknowledgements

For further information regarding this testimony, please contact J. Christopher Mihm at (202) 512-8676. Individuals making key contributions to this testimony included Robert Goldenkoff, Mark Bird, Christina Chaplain, Richard Hung, Ty Mitchell, and Lynn Wasielewski.
